इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 13730-26 (1996): particular types of winding wires, Part 26: Polymide-imide enamelled round copper wire, Class 200 [ETD 33: Winding Wire]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 13730 (Part 26) : 1996
IEC 317-26 (1990)

(Reaffirmed 2001)

भारतीय मानक

कुण्डलन तारों के विशेष प्रकारों की विशिष्टि

भाग 26 पॉलीएमाईड-इमाईड इनैमलकृत गोल ताँबा के तार वर्ग 200

Indian Standard

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES

PART 26 POLYAMIDE-IMIDE ENAMELLED ROUND COPPER WIRE, CLASS 200

ICS 29.060.10

© BIS 1996

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 1996 **Price Group 2**

Winding Wires Sectional Committee, ET 33

NATIONAL FOREWORD

This Indian Standard which is identical to IEC 317-26 (1990) issued by the International Electrotechnical Commission was adopted by the Bureau of Indian Standards on the recommendation of the Winding Wires Sectional Committee ET 33 and approval of the Electrotechnical Division Council.

Presently requirements of enamelled round and enamelled rectangular winding wires are covered under IS 4800 (series) and IS 3855 (series) respectively. Over the years, changes in technology and developments, resulted in publishing of number of amendments to these standards. Even though Indian standards were following the developments in IEC level, but for some specific properties namely resistivity of copper; methods of test, etc, IEC standards were not adopted in totality. Keeping in view the present trend in the industry it has been decided to align the Indian standards on winding wires by adopting the IEC standards in totality.

The series of IEC Standards on methods of tests (IEC 851 Series) and particular type of winding wires (IEC 317 Series) were decided to adopt without deviation as follows :

> IEC 851 (series) 'Methods of test for winding wires' has already been adopted and published as IS 13778/IEC 851 (series) in 6 parts.
>
> The adoption of IEC 317 (series) on particular types of winding wires is being carried out in phased manner under the series IS 13730/IEC 317.

With the publication of the new series of standards, corresponding IS 4800 (series) and IS 3855 (series) would be withdrawn.

The text of IEC standards has been approved as suitable for publication as Indian Standard without deviation. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particulary drawn to the following:

a) Wherever the words, 'International Standard' appear referring to this standard, they should be read as 'Indian standard', and
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as a decimal marker.

Only the English text of the International Standard has been retained while adopting it as Indian Standard.

CROSS REFERENCES

In this Indian Standard, wherever reference appears to IEC 317-0-1 (1990) 'Specification for particular types of winding wires — Part 0 : General requirements, Section 1 Enamelled round copper wire', shall be read in its respective place as IS 13730 (Part 0/Sec 1) : 1993/IEC 317-0-1 (1990) 'Specification for particular types of winding wires — Part 0 : General requirements, Section 1 Enamelled round copper wire' which is identical to IEC 317-0-1 : 1990.

For the purpose of deciding whether a particular requirements of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES

PART 26 POLYAMIDE-IMIDE ENAMELLED ROUND COPPER WIRE, CLASS 200

1 Scope

This International Standard specifies the requirements of enamelled round copper winding wire of class 200 with a sole coating based on polamide-imide resin.

Class 200 is a thermal class that requires a minimum temperature index of 200 and a heat shock temperature of at least 220 °C.

The temperature in degrees Celsius corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated and this will depend on many factors, including the type of equipment involved.

The range of nominal conductor diameters covered by this standard is:

- Grade 1: 0,071 mm up to and including 1,600 mm;
- Grade 2: 0,071 mm up to and including 0,500 mm.

The nominal conductor diameters are specified in clause 4 of IEC 317-0-1.

2 Normative references

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid international standards.

IEC 317-0-1: 1990, *Specifications for particular types of winding wires - Part 0: General requirements - Section 1: Enamelled round copper wire.*

3 Definitions and general notes on methods of test

For definitions and general notes on methods of test, see clause 3 of IEC 317-0-1.

In case of inconsistencies between IEC 317-0-1 and this standard, IEC 317-26 shal prevail.

4 Dimensions

See clause 4 of IEC 317-0-1.

5 Electrical resistance

See clause 5 of IEC 317-0-1.

6 Elongation

See clause 6 of IEC 317-0-1.

7 Springiness

See clause 7 of IEC 317-0-1.

8 Flexibility and adherence

See clause 8 of IEC 317-0-1, where the constant *K* used for the calculation of the number of revolutions for the peel test shall be 75 mm.

9 Heat shock

See clause 9 of IEC 317-0-1, where the minimum heat shock temperature shall be 220 °C.

10 Cut-through

No failure shall occur within 2 min at 350 °C.

11 Resistance to abrasion (nominal conductor diameters from 250 mm up to and including 1,600 mm)

The wire shall meet the requirements given in table 1.

Table 1 - Resistance to abrasion

Nominal conductor diameter mm	Grade 1		Grade 2	
	Minimum average force to failure N	Minimum force to failure of each measurement N	Minimum average force to failure N	Minimum force to failure of each measurement N
0,250	3,00	2,55	4,90	4,15
0,280	3,25	2,75	5,25	4,45
0,315	3,50	2,95	5,65	4,80
0,355	3,75	3,20	6,05	5,15
0,400	4,05	3,45	6,50	5,50
0,450	4,35	3,70	7,00	5,90
0,500	4,65	3,95	7,50	6,35
0,560	5,00	4,25	-	-
0,630	5,35	4,55	-	-
0,710	5,70	4,85	-	-
0,800	6,10	5,15	-	-
0,900	6,55	5,55	-	-
1,000	7,05	5,95	-	-
1,120	7,60	6,45	-	-
1,250	8,20	6,95	-	-
1,400	8,80	7,45	-	-
1,600	9,45	8,00	-	-

NOTE - For intermediate nominal conductor diameters, the value of the next largest nominal conductor diameter shall be taken.

12 Resistance to solvents

See clause 12 of IEC 317-0-1.

13 Breakdown voltage

See clause 13 of IEC 317-0-1, where the elevated temperature shall be 200 °C.

14 Continuity of insulation

See clause 14 of IEC 317-0-1.

15 Temperature index

See clause 15 of IEC 317-0-1, where the minimum temperature index shall be 200.

The test shall be carried out on a wire having a nominal conductor diameter of 0,500 mm, Grade 2, unless otherwise agreed between purchaser and supplier.

16 Resistance to refrigerants

Test appropriate but no requirements specified.

17 Solderability

Test inappropriate.

18 Heat or solvent bonding

Test inappropriate.

19 Dielectric dissipation factor

Test inappropriate.

20 Resistance to transformer oil

Test appropriate but no requirements specified.

21 Loss of mass

Test inappropriate.

22 High temperature failure

Test appropriate but no requirements specified.

30 Packaging

See clause 30 of IEC 317-0-1.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'.

This Indian Standard has been developed from Doc : No. ETD 33 (3773).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 323 01 31, 323 83 75, 323 94 02

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17 323 38 41
Eastern	: 1/14 C. I.T. Scheme VII M, V. I. P. Road, Maniktola CALCUTTA 700054	337 84 99, 337 85 61 337 86 26, 337 91 20
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43 60 20 25
Southern	: C. I. T. Campus, IV Cross Road, MADRAS 600113	235 02 16, 235 04 42 235 15 19, 235 23 15
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	832 92 95, 832 78 58 832 78 91, 832 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. PATNA. THIRUVANANTHAPURAM.

Printed at Dee Kay Printers, New Delhi-110015, India.